



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,666	11/20/2001	Hans Hallen	003300-870	9034

7590 05/12/2003

Benton S. Duffett, Jr.  
BURNS, DOANE, SWECKER & MATHIS, L.L.P.  
P.O. Box 1404  
Alexandria, VA 22313-1404

EXAMINER

OLTMANS, ANDREW L

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 05/12/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/988,666

Applicant(s)

HALLEN ET AL.

Examiner

Andrew L Oltmans

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12, 13 and 19 is/are rejected.
- 7) ☒ Claim(s) 14 and 20 is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 6. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of group II, claims 12-14 and 19-20 in Paper No. 8, filed April 8, 22003 is acknowledged. The traversal is on the ground(s) that there would be no serious burden on the examiner to examine both inventions. This is not found persuasive because the applicant has not controverted the specific reasons for the restriction made in paragraphs 2, 3 and 4 of the office action. Also, each invention requires its own independent search, not required by other groups of inventions. Each invention also requires independent consideration of prior art, formulation of rejections, and consideration of different issues.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

2. Claims 14 and 20 are objected to because of the following informalities:

Claims 14 and 20 are dependent upon non-elected claim 1. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1742

4. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12, employs the open claim language, “comprising” (line 3), to describe the composition, which leaves the claim open to any additional components even in major amounts (MPEP 2111.03). However, claim 12 also employs the phrase “less than 2% by weight of inevitable impurities” (lines 7-8), which appears to attempt to claim the balance of the component defined by the claim closing the claim to the inclusion of components other than those recited. Claim 12 is indefinite in that the use of both open and closed claim language makes it unclear whether the claims are limited to only the recited components (and up to 2% inevitable impurities) or are open to the inclusion of additional components (up to 2% inevitable impurities in addition to other non-claimed components). Applicants are advised that for the purpose of this first Office action on the merits the claims will be interpreted as open when considering the prior art (i.e. non-claimed components may be present in the claim and are not limited to less than 2%, which is the amount that the “inevitable impurities” are limited). If in response to this rejection applicants state that the phrase “comprising... up to 2% by weight of inevitable impurities” should be interpreted as open, the Examiner will maintain the positions regarding the applied prior art as appropriate and will consider any other arguments and amendments. If applicants state the phrase “comprising... up to 2% by weight of inevitable impurities” closes the composition to additional then in the next Office action dependent claims such as dependent, the prior art will be considered appropriately.

Art Unit: 1742

**Claim Rejections - 35 USC § 103**

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Shepard 2,936,229 in view of DuBois 5,234,510**

6. Claims 12-13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard 2,936,229 (Shepard) in view of DuBois 5,234,510 (DuBois; cited on IDS filed November 20, 2001).

Shepard teaches a spray weld process wherein a ferrous metal substrate is sprayed with a powder and heated (col 1, lines 37-59; col 6, lines 19-36) wherein the nickel-based powder composition comprises concentrations of nickel, copper, iron, carbide forming element, boron, silicon and carbon that overlap the instantly claimed compositions, as instantly claimed in claims 12-13 and 19 (col 2):

Some other spray-weld alloys of the boron, nickel type, which have been found suitable for the spray-weld process, are listed in the following table, the amounts indicating percent by weight:

20

**TABLE**

Si.....	1-6	4-5	4-5	4-5	3.5-4.5
B.....	1-6	3.5-4.5	3.5-4.5	3.5-4.5	3.75-3.75
25 Cu.....	0-8	5-8	5-8	5-8	5-8
Mo.....	0-10	4.5-5.5	4.5-5.5	4.5-5.5	4.5-5.5
Cr.....	0-20	8-12	15-18	16-18	16-18
C.....	0-1	0-0.2	0-0.2	0-0.2	0.7-1
Fe.....	0-5	0-5	0-5	0-3	0-5
Balance in all cases					
Ni.....					
30					

Art Unit: 1742

Shepard fails to meet all the limitations of the instant claims in that Shepard does not explicitly teach the exact compositional ranges or the inclusion of phosphorous.

DuBois teaches that the inclusion of 0.5-4.5% phosphorous (col 2, line 29) in nickel-based powder coating compositions for ferrous metal substrates provides various advantages (col 2 - col 3):

65    The use of phosphorous in the present invention in the ranges cited is critical to provide the novel surfacing alloys of the present invention. The phosphorous utilized in the present invention may be in the form of a

and,

BNi-6 braze material such as a Wall Colmonoy, Microbraz ® 10 constituent which includes a nominal composition of 11% phosphorous, a maximum of 0.06% carbon and with the balance being nickel. The phosphorous content of the present invention provides an initial 5 low melt phase to the present alloy composition which improves the property of cold wetting of substrates such as aluminum bronze and cast iron. The phosphorous also acts as a flux in the present invention. The phosphorous is a critical constituent of the present in- 10 vention in that it substantially eliminates the formation of boro silicates in the final surfacing coating when formed on a substrate. Without wishing to be bound by theory, it is believed that the phosphorous, having a greater affinity for oxygen than either silicon or boron, 15 acts to inhibit the formation of oxides of silicon and boron which are the predecessors of the boro silicates. Thus, by the addition of phosphorous in the ranges recited undesirable boro silicate formation is substantially reduced.

20

With respect to the concentration of the nickel-based alloy composition, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy taught by the reference has a composition which overlaps that of

Art Unit: 1742

the instant claims, In re Peterson, 65 USPQ2d 1379, In re Malagari, 182 USPQ 549, and MPEP 2144.05.

With respect to the inclusion of phosphorous in the composition, one of ordinary skill in the art at the time that the invention was made would have found the inclusion of phosphorous into the composition of Shepard obvious because one of ordinary skill would have been motivated to provide Shepard with the desirable properties from phosphorous taught by DuBois, including initial low melt phase, improved cold wetting for cast iron (as claimed in claim 12), action as a flux, and substantial elimination of undesirable borosilicates (DuBois: col 3, lines 5-20).

***Tour 2,875,043 in view of DuBois 5,234,510***

7. Claims 12-13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tour 2,875,043 (Tour) in view of DuBois 5,234,510 (DuBois; cited on IDS filed November 20, 2001).

Tour teaches a spray weld process wherein a ferrous metal substrate is sprayed with a powder and heated (col 1, lines 34-59; col 5, lines 23-40) wherein the nickel-based powder composition comprises concentrations of nickel, copper, iron, carbide forming element, boron, silicon and carbon that overlap the instantly claimed compositions, as instantly claimed in claims 12-13 and 19 (col 3):

Art Unit: 1742

Spray-welding alloys in accordance with the invention may thus comprise Si: 1-6% and preferably 4-5%; B: 1-6% and preferably 3.5-4.5%; Cr: 0-20%; Cu: 3-8% and preferably 5-6%; Mo: 3-10% and preferably 4.5-5.5%; balance Ni plus impurities. What has been said above in connection with the prior art alloys of the boron-silicon-nickel type regarding impurities and/or additives and especially carbon and free iron, applies equally to the alloys in accordance with the invention.

Typical component ranges of alloys in accordance with the invention are exemplified in the following table:

TABLE

55

Si.....	1-6	4-5	4-5	4-5	3.5-4.5
B.....	1-6	3.5-4.5	3.5-4.5	3.5-4.5	2.75-3.75
Cu.....	3-8	5-6	5-6	5-6	5-6
Mo.....	3-10	4.5-5.5	4.5-5.5	4.5-5.5	4.5-5.5
Cr.....	0-20	8-12	15-18	16-18	16-18
C.....	0-1	0-0.2	0-0.2	0-0.2	0.7-1
Fe.....	0-5	0-5	0-5	0-5	0-5

60

Balance in all cases Ni.

Tour fails to meet all the limitations of the instant claims in that Tour does not explicitly teach the exact compositional ranges or the inclusion of phosphorous.

DuBois teaches as set forth in paragraph 6, above.

With respect to the concentration of the nickel-based alloy composition, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy taught by the reference has a composition which overlaps that of the instant claims, In re Peterson, 65 USPQ2d 1379, In re Malagari, 182 USPQ 549, and MPEP 2144.05.

With respect to the inclusion of phosphorous in the composition, one of ordinary skill in the art at the time that the invention was made would have found the inclusion of phosphorous into the composition of Tour obvious because one of ordinary skill would have been motivated to provide Tour with the desirable properties from phosphorous taught by DuBois, including



Art Unit: 1742

initial low melt phase, improved cold wetting for cast iron (as claimed in claim 12), action as a flux, and substantial elimination of undesirable borosilicates (DuBois: col 3, lines 5-20).

*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L. Oltmans whose telephone number is 703-308-2594. The examiner can normally be reached 8:30-5:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Andrew L. Oltmans  
Examiner  
Art Unit 1742

May 7, 2003